



TAOGLAS®



Datasheet

Guardian 4in1 Adhesive and Wall Mount Antenna

Part No:
MA963.A.B1VW.002

Description:

Guardian 4in1 Adhesive and Wall Mount Antenna 4*5G/4G Antennas

Features:

- Low-Profile Adhesive Mount Panel Antenna
- 4 * Wideband 5G/4G MIMO – 600MHz – 6GHz
- Covering Worldwide 5G/4G Bands
- Covering 5G NR Sub 6GHz Bands
- Covering CAT-M1 & NB-IoT Bands
- Includes 3G / 2G Fallback
- IP67 Rated Enclosure
- Cables: 3m KSR200-P as Standard
- Connectors: SMA(M)ST Connectors as Standard
- Dimensions: 146*134*20mm
- RoHS & REACH Compliant

1. Introduction	3
2. Specifications	5
3. Antenna Characteristics	7
4. Radiation Patterns	11
5. Mechanical Drawing	26
6. Packaging	27
Changelog	28

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1. Introduction



The Taoglas MA963 Guardian is a next-generation 4in1 combination antenna. It is the world-first panel antenna designed for IoT Gateway and Router devices with multiple wireless technologies. This antenna delivers powerful MIMO antenna technology for LTE and Sub-6GHz 5G bands covering 600MHz - 6GHz. This antenna is designed for LTE bands worldwide (including 3G & 2G fallback) for access points, terminals, and routers. CAT-M1 and NB-IoT and the recently introduced 600MHz Extended LTE Band 71 are also covered. This wide bandwidth enables designers to cover a wide range of technologies by installing a single antenna installation. It is a heavy-duty, fully IP67 waterproof external M2M antenna available in both wall and adhesive mount versions.

Typical use cases include

- IoT Gateway and Routers
- HD Video Streaming
- Transportation

4G wireless applications demand high-speed data uplink and downlink. High efficiency and high gain MIMO antennas are necessary to achieve the required signal to noise ratio and throughput required to solve these challenges. Taoglas also takes care to have high isolation among these antennas to prevent self-interference. Low loss cables used to keep efficiency high over long cable lengths. The housing is IP67 waterproof and the adhesive mount version comes with 3M adhesive. The antenna can be mounted internally or externally on a vehicle. The MA963 comes with 3m, low loss KSR200-P coaxial cables for the LTE antennas as standard. Customized cables and connector versions are also available. Contact your regional Taoglas customer support for more information on how to integrate the MA963 or sales support.

The housing is IP67 waterproof and comes with a 3M adhesive. The antenna can be mounted internally or externally on a vehicle. The MA963 comes with 3 meter, low loss KSR200-P coaxial cables for the LTE antennas as standard. Customized cables and connector versions are also available. Contact your regional Taoglas customer support team for more information about this product, its' integration or immediate support.

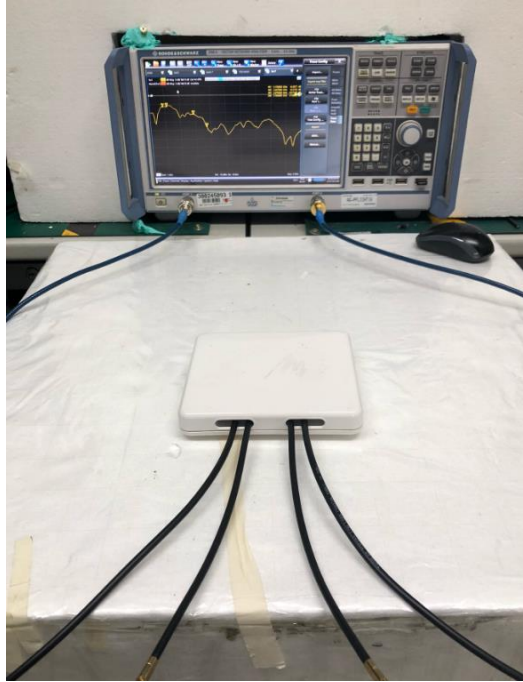
2. Specifications

LTE Antenna											
Frequency (MHz)	5G NR Band 71		LTE700	GSM850/900	5G NR Band 74, 75, 76	DCS	PCS	UMTS1	LTE2600	5G NR Band 77, 78, 79	LTE5200/WiFi5800
	617 ~698	698 ~806	824 ~960	1427 ~1518	1710 ~1880	1850 ~1990	1920 ~2170	2490 ~2690	3300 ~3500	5150 ~5925	
Efficiency (%)											
MIMO 1	3m	33.03	42.85	54.27	56.48	62.58	57.98	55.61	57.04	43.44	32.23
MIMO 2	3m	39.89	55.17	56.75	45.73	48.59	43.62	41.21	40.46	37.88	32.60
MIMO 3	3m	46.38	51.55	55.06	43.81	46.39	45.05	44.82	51.22	42.86	34.02
MIMO 4	3m	32.78	34.87	35.74	49.14	61.44	58.48	54.84	53.27	42.94	28.30
Average Gain (dB)											
MIMO 1	3m	-4.81	-3.68	-2.65	-2.48	-2.04	-2.37	-2.55	-2.44	-3.62	-4.92
MIMO 2	3m	-3.99	-2.58	-2.46	-3.40	-3.13	-3.60	-3.85	-3.93	-4.22	-4.87
MIMO 3	3m	-3.34	-2.88	-2.59	-3.58	-3.34	-3.46	-3.49	-2.91	-3.68	-4.68
MIMO 4	3m	-4.84	-4.58	-4.47	-3.09	-2.12	-2.33	-2.61	-2.74	-3.67	-5.48
Peak Gain (dBi)											
MIMO 1	3m	1.42	1.28	3.56	3.24	3.55	3.21	3.21	3.11	3.06	3.84
MIMO 2	3m	1.59	2.76	3.38	3.42	3.06	3.06	4.08	4.76	2.07	1.92
MIMO 3	3m	1.93	2.26	2.86	3.12	4.71	4.71	4.32	3.89	2.88	2.39
MIMO 4	3m	1.08	0.76	3.02	3.62	3.11	3.11	2.92	2.77	2.97	2.46
Impedance	50Ω										
Polarization	Linear										
Radiation Pattern	Omni										
Max. input power	2 W										

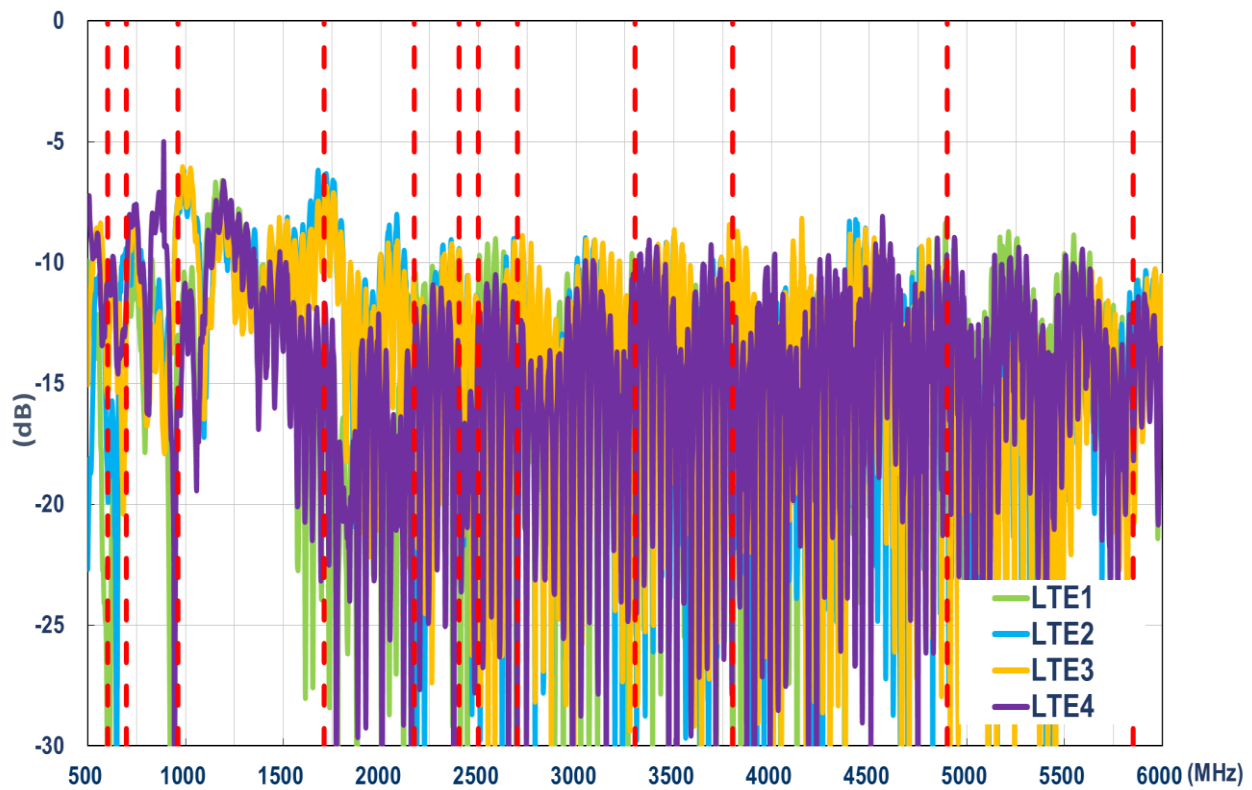
Mechanical	
Height	20 ±2 mm
Planner Dimension	146*134 mm
Casing	ASA
Cable	KSR200-P 3000 mm
Connector	SMA(M)
Weight	450g
Environmental	
Protection	IP67
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

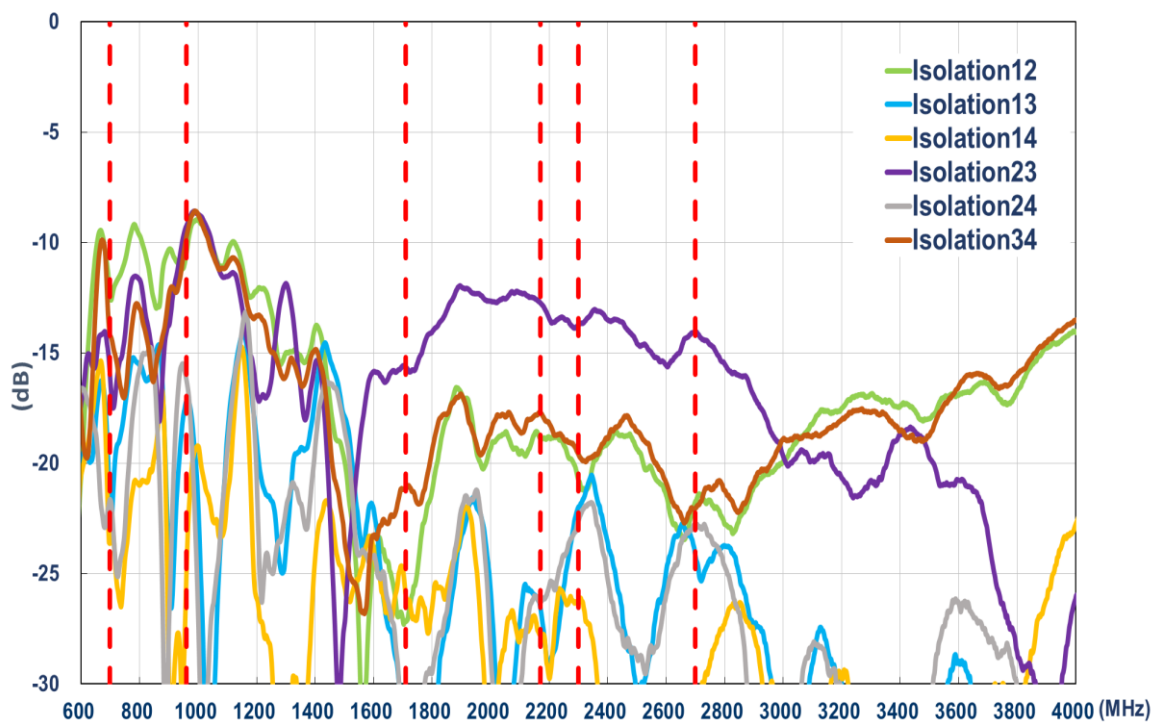
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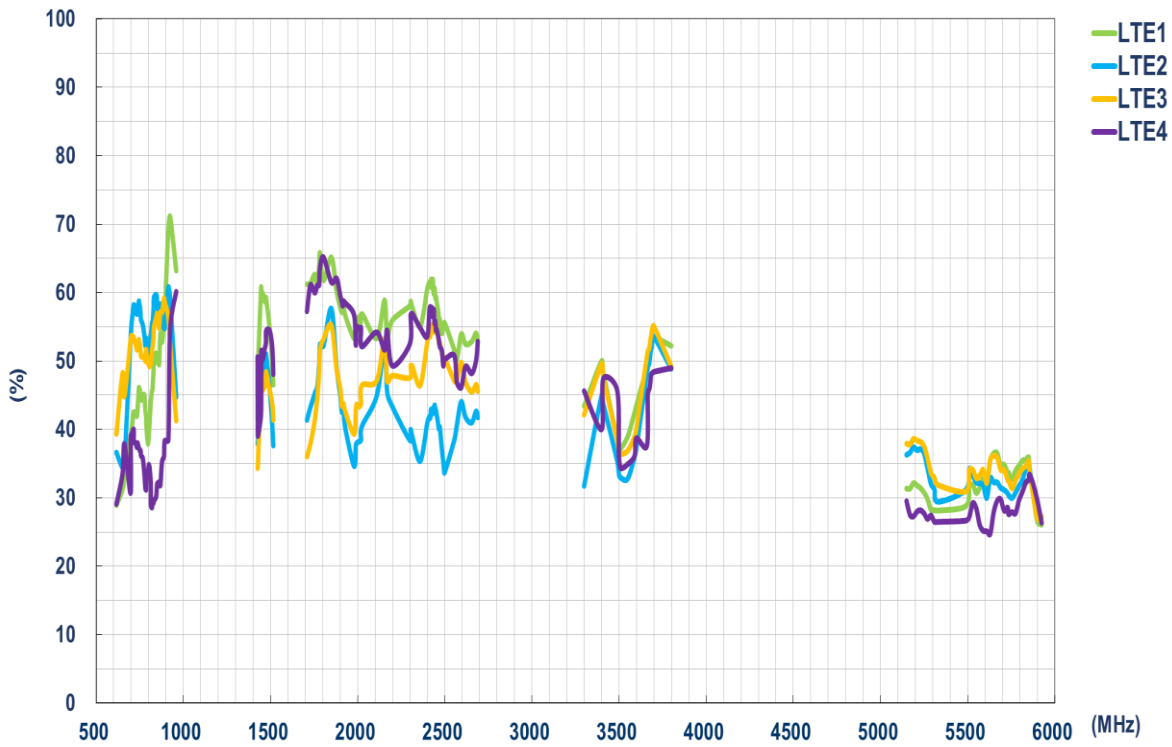
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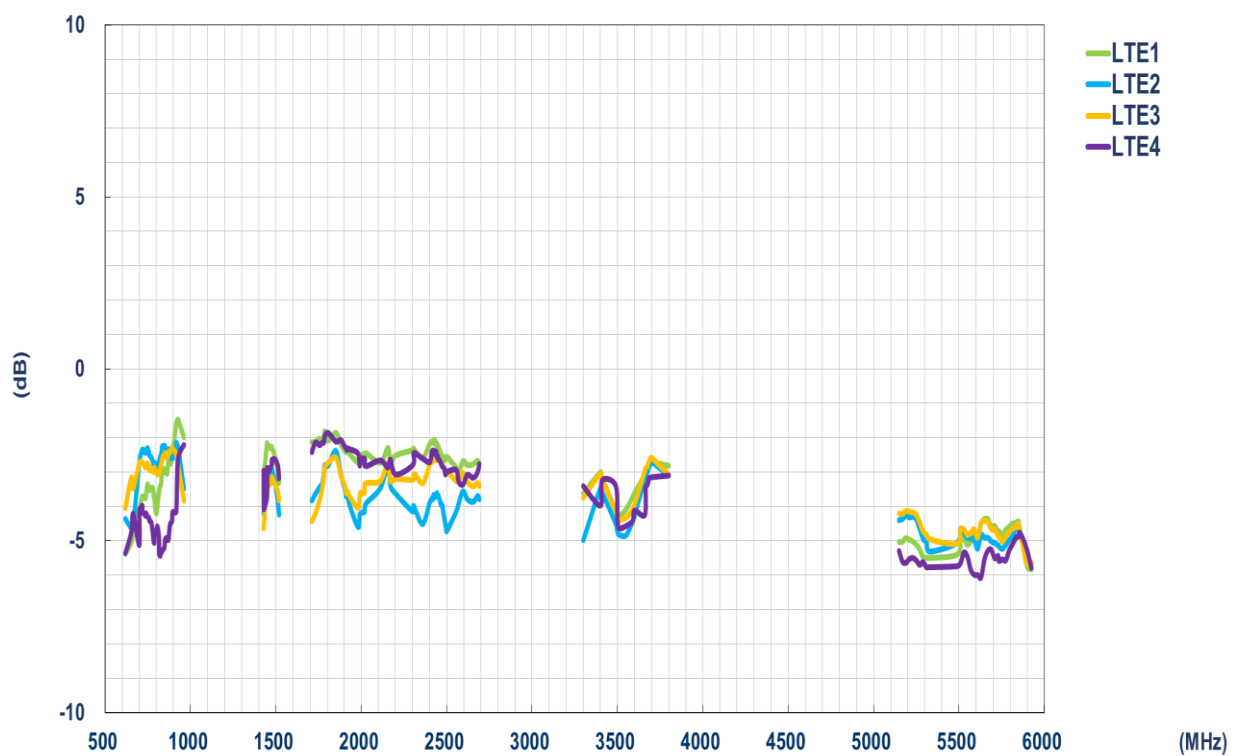
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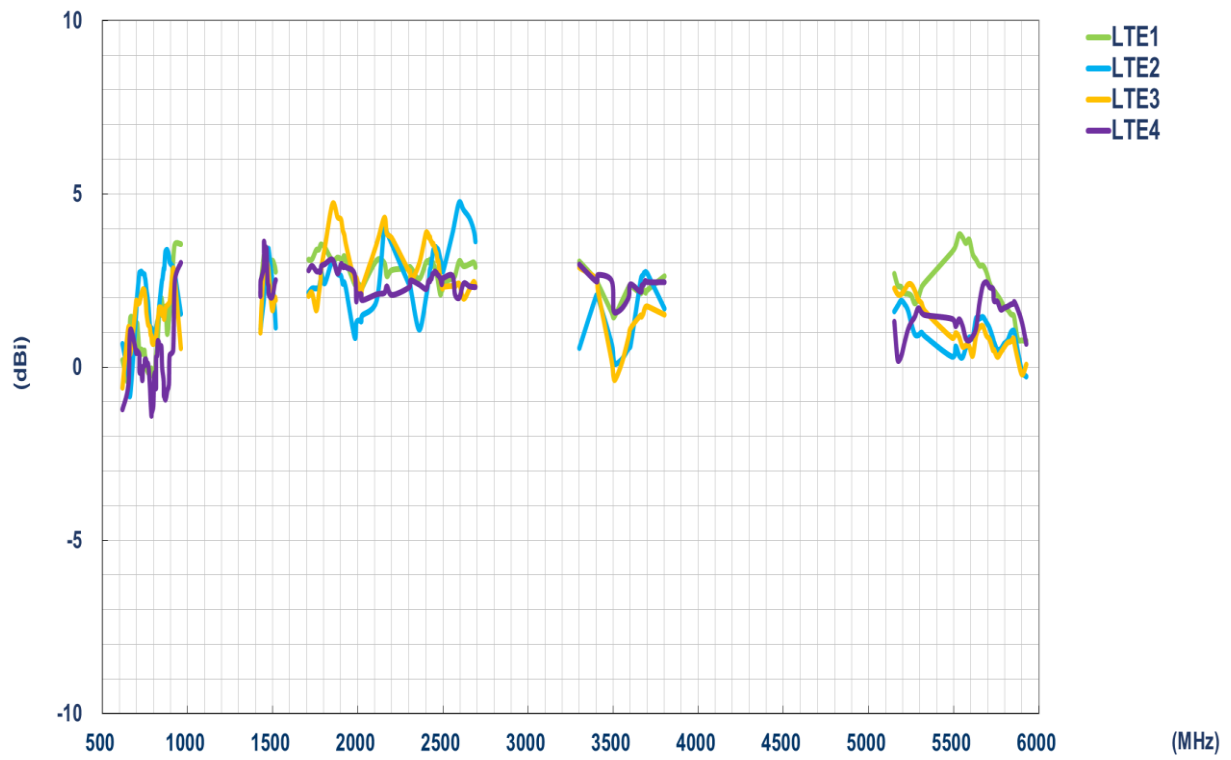
3.4 Efficiency



3.5 Average gain



3.6 Peak gain



4. Radiation Patterns

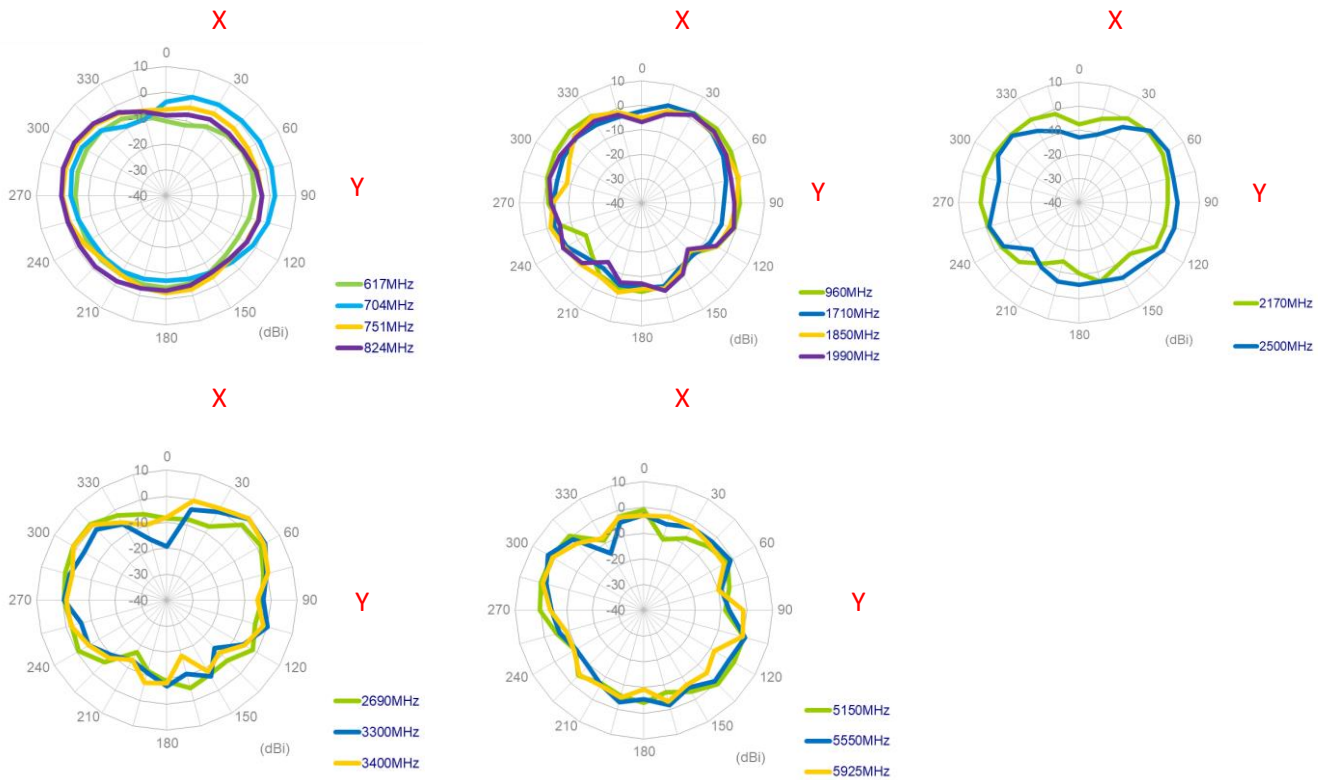
4.1 Test Setup – Free Space



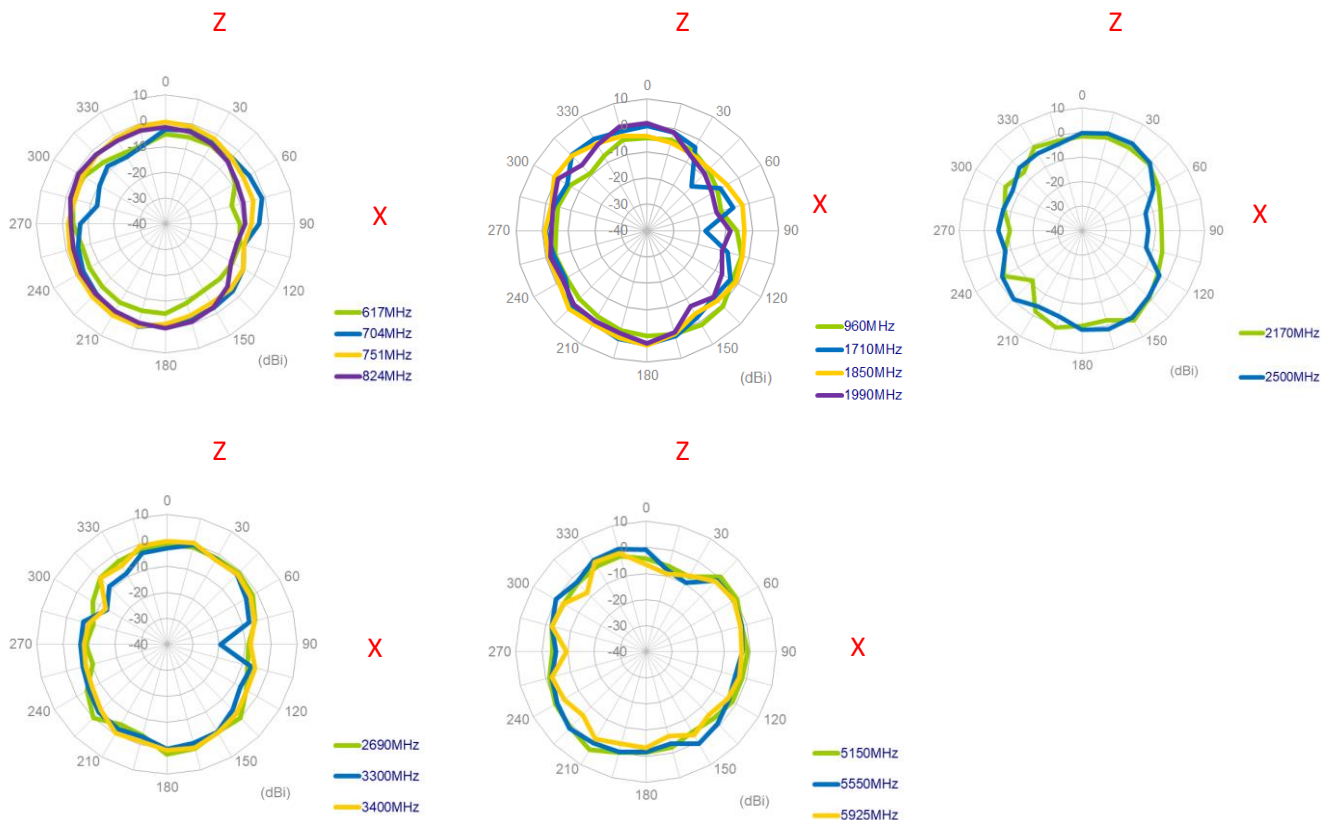
4.2 2D Radiation Patterns

4.2.1 5G/4G MIMO1

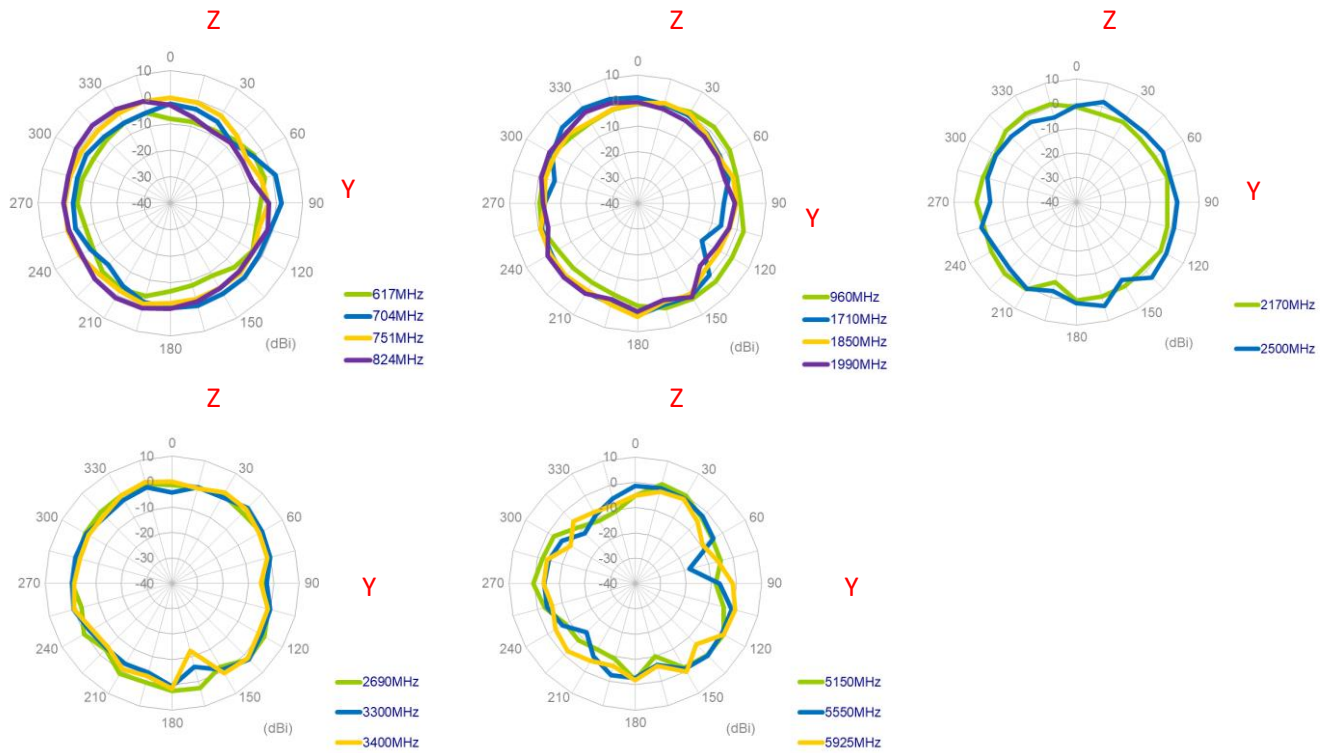
XY Plane



XZ Plane

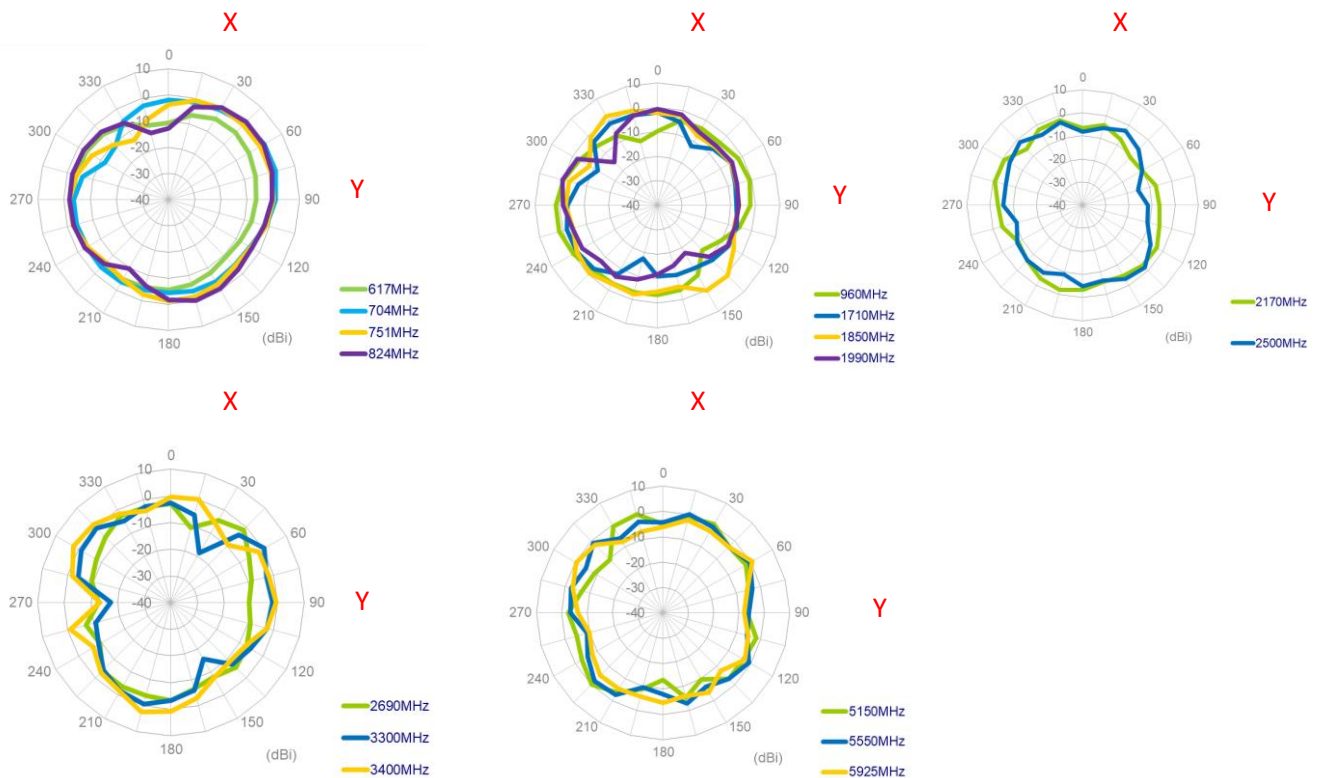


YZ Plane

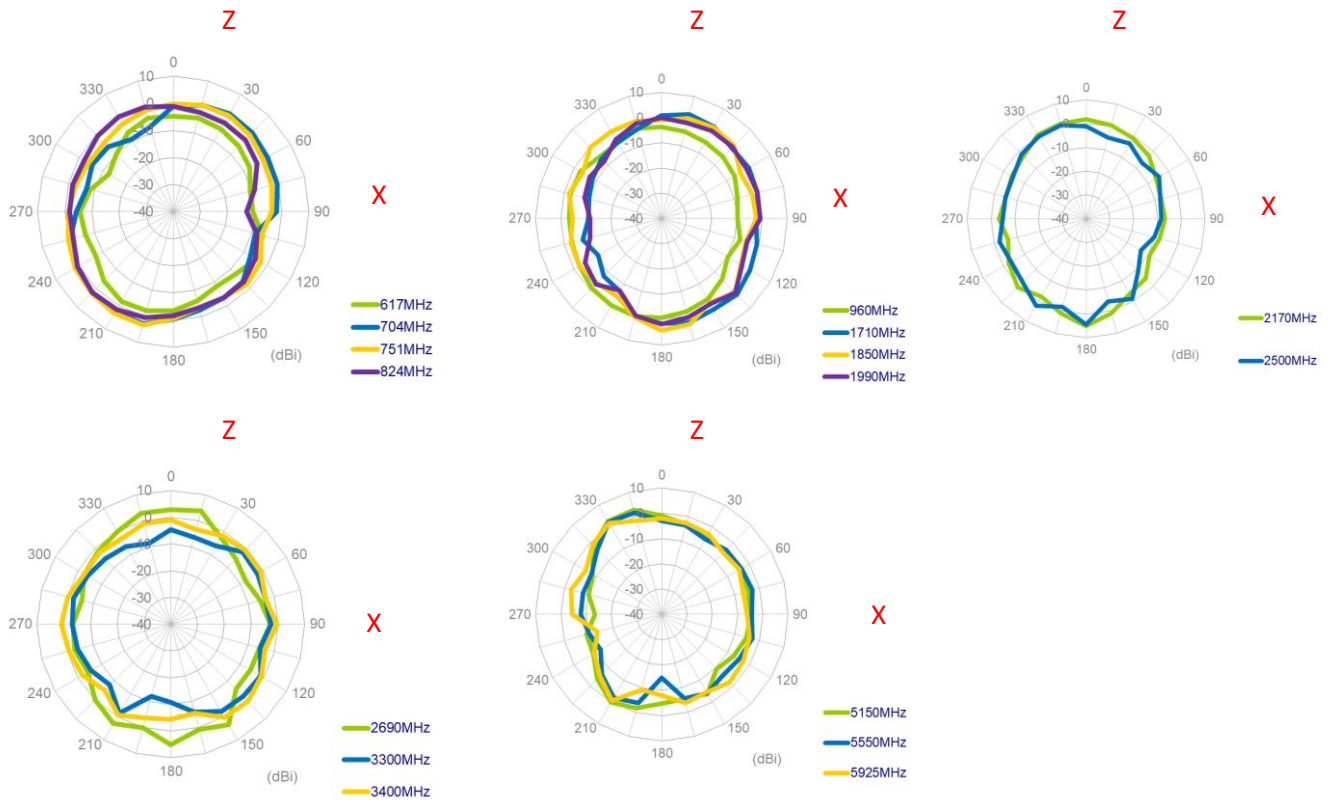


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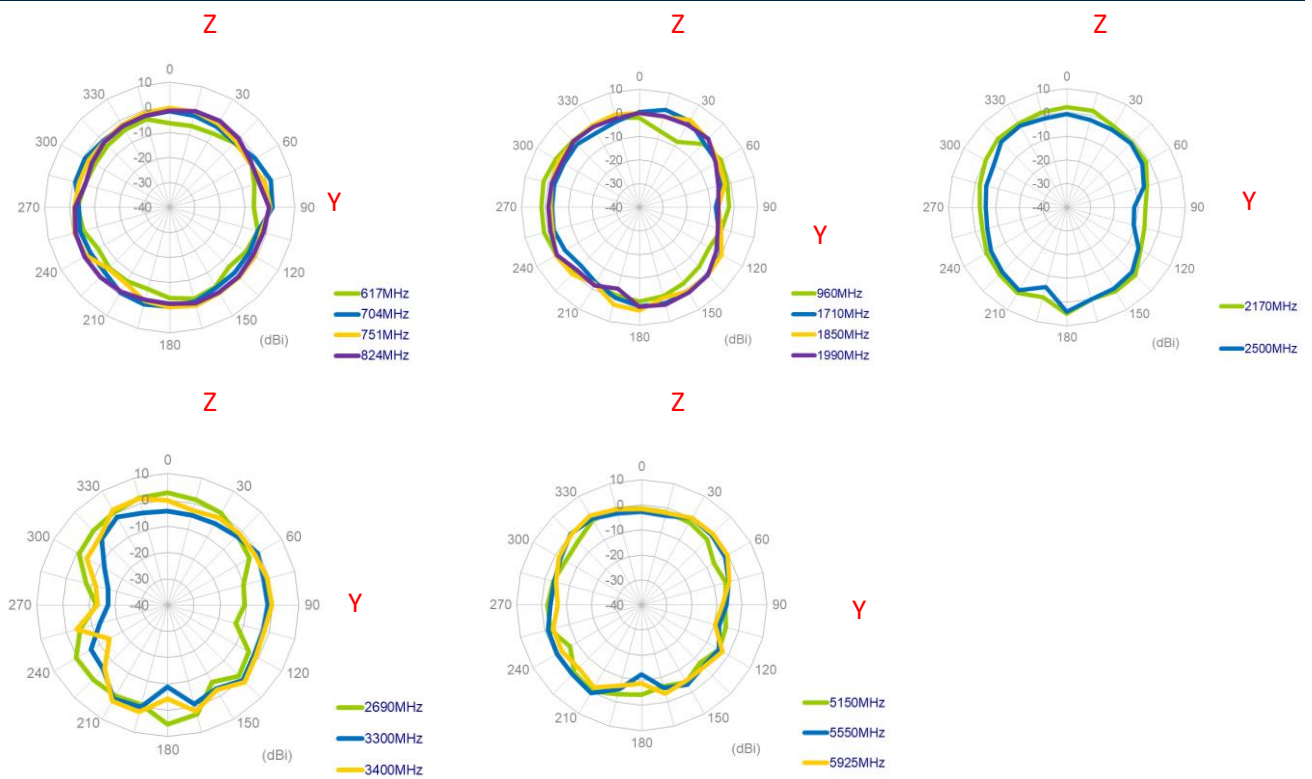
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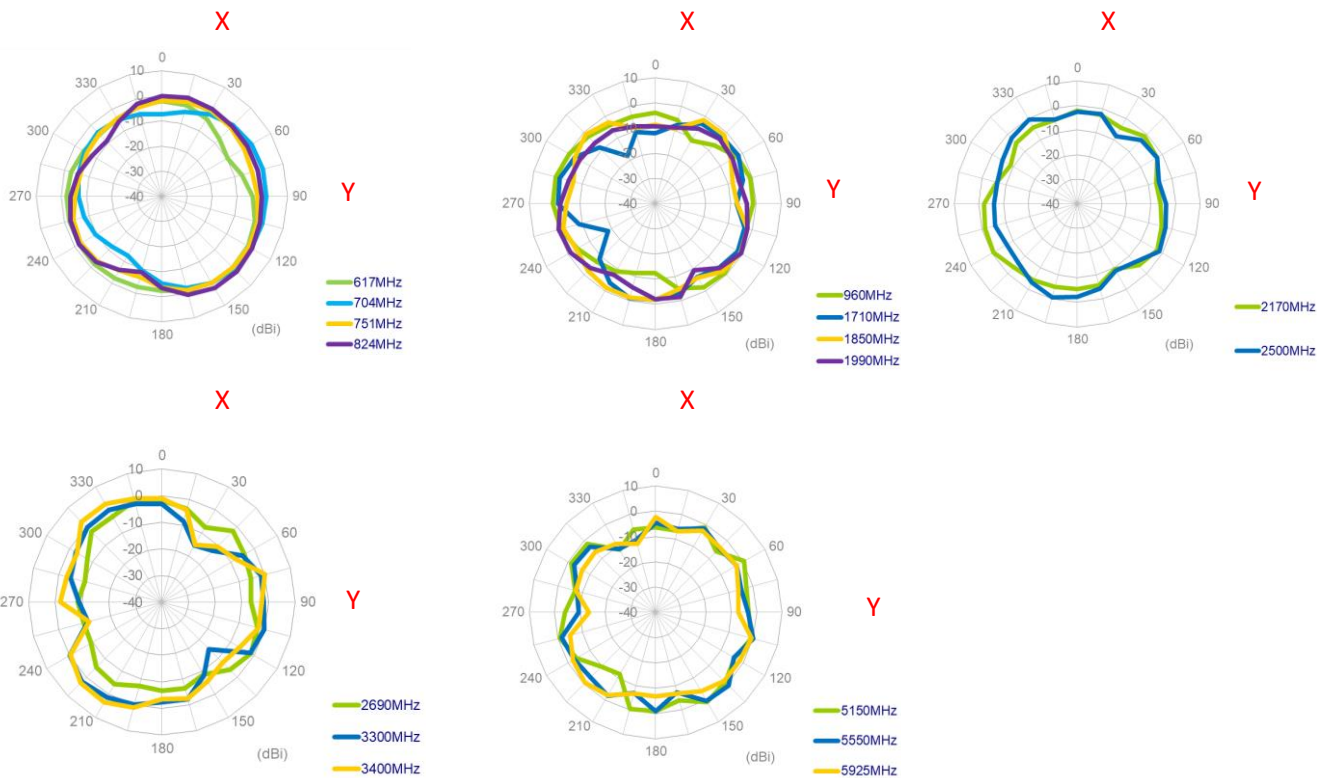


YZ Plane

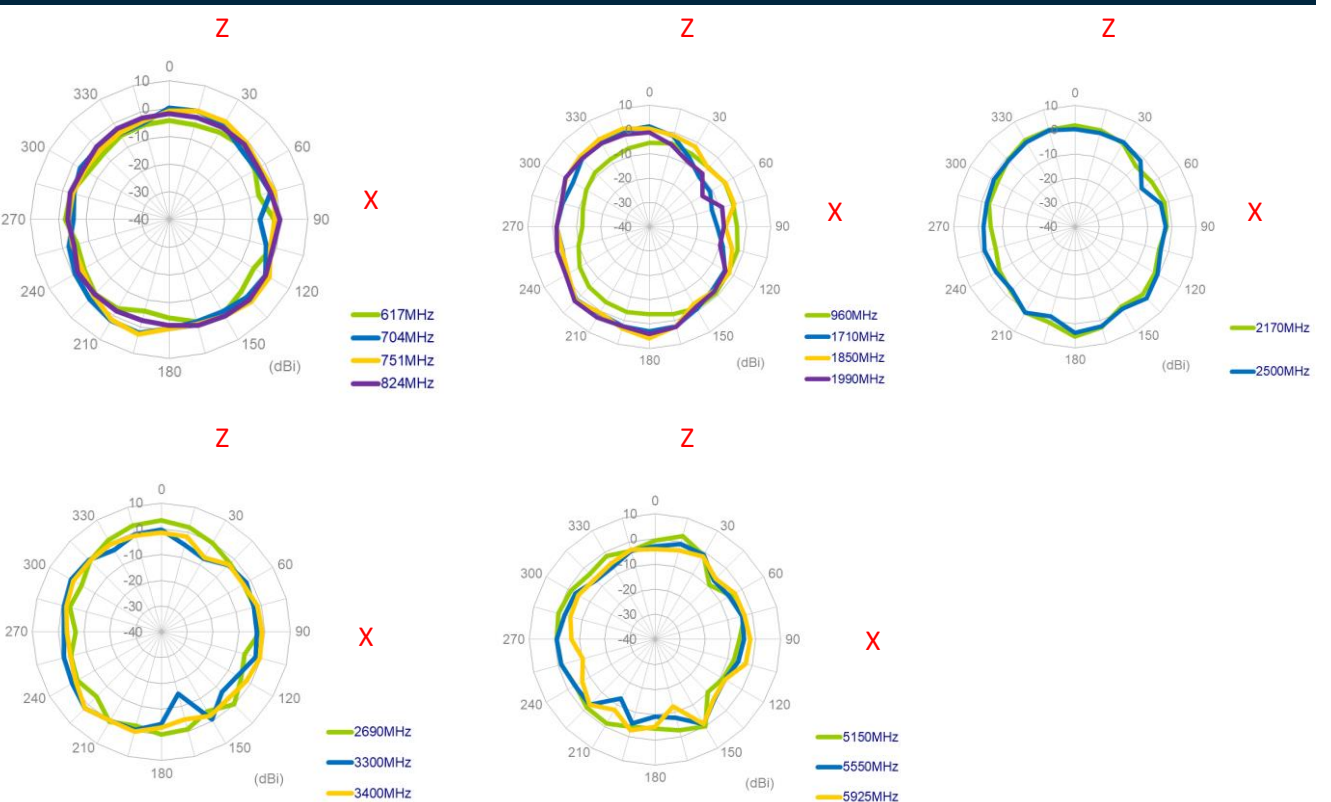


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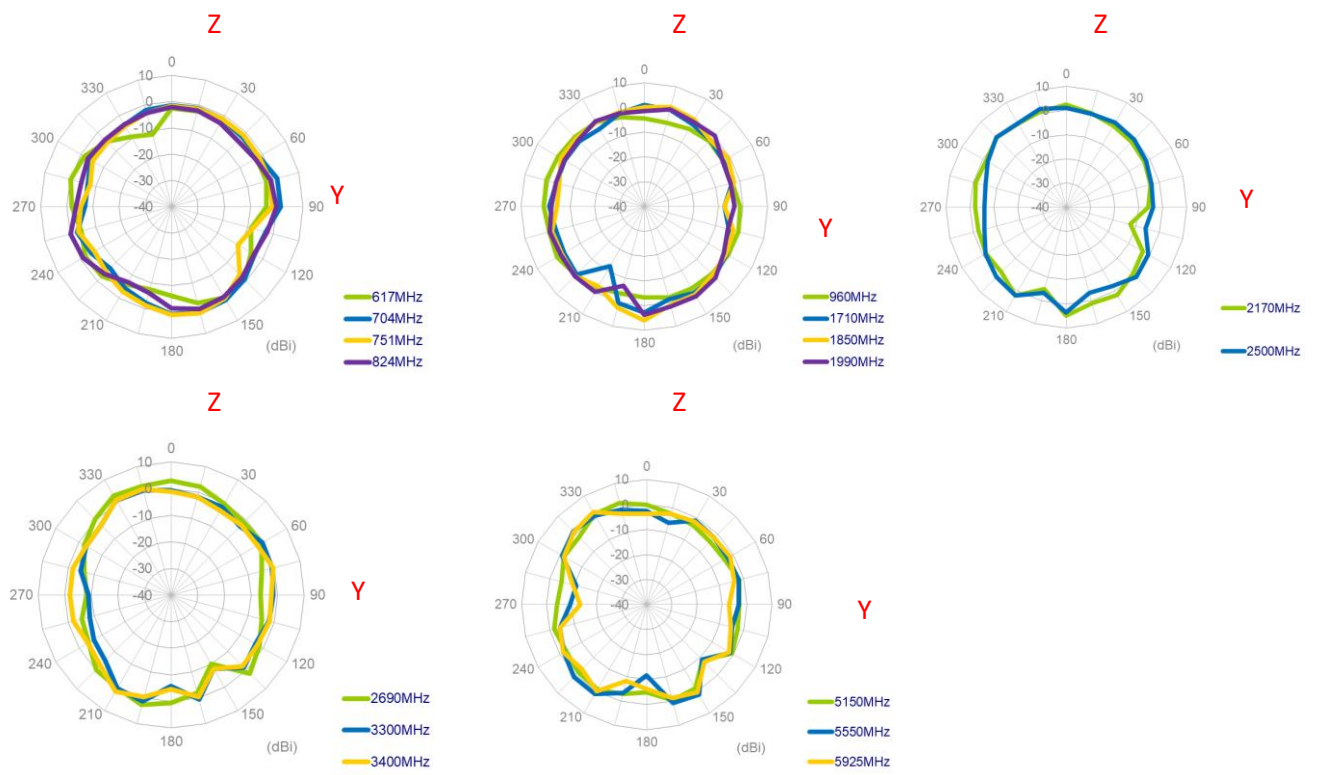
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XZ Plane

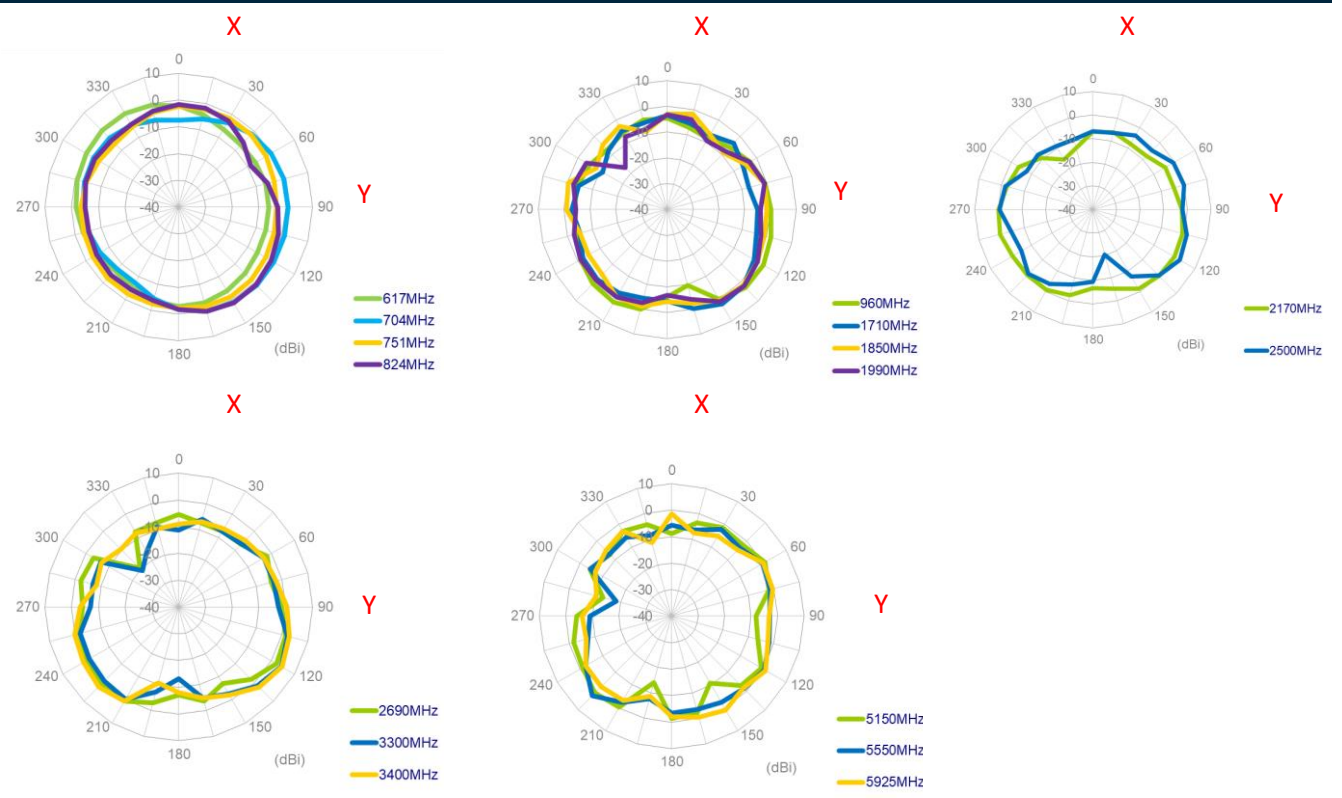


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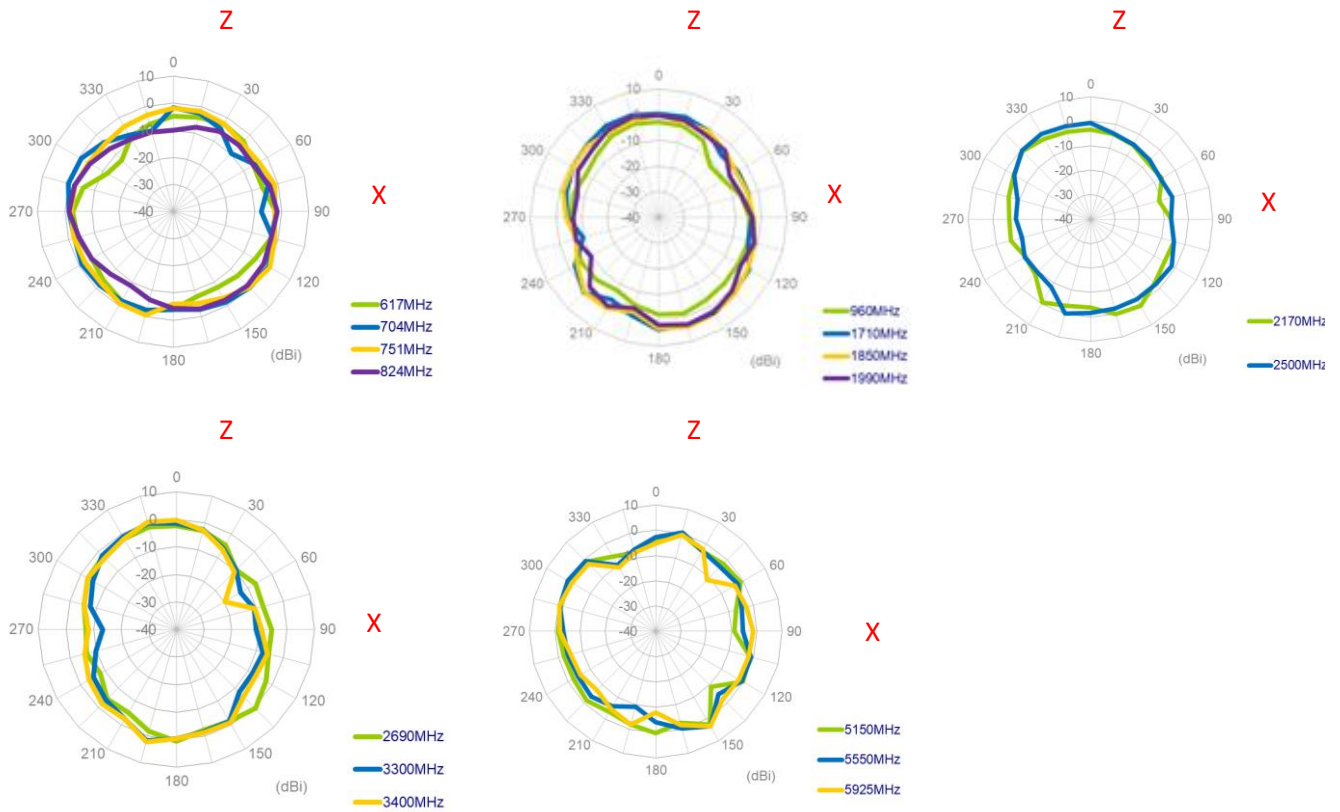


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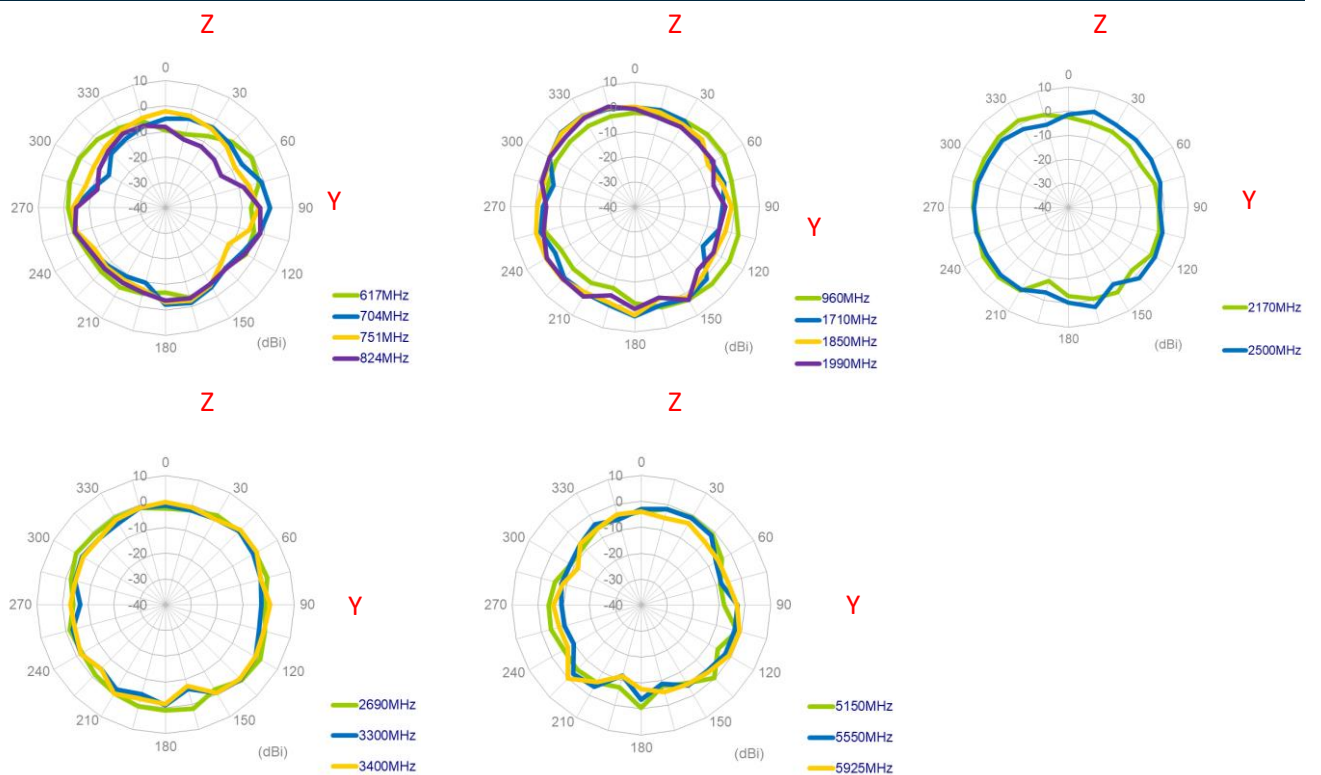
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XZ Plane

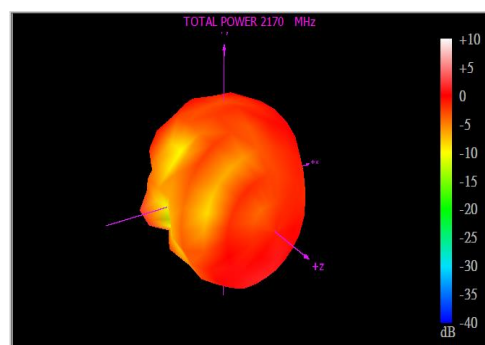
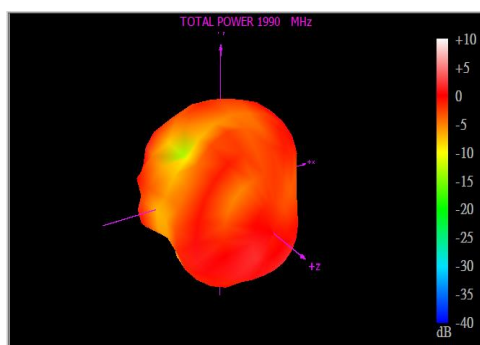
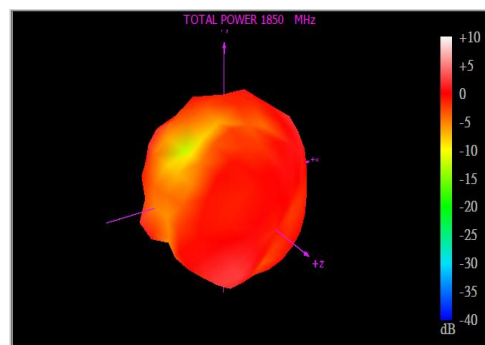
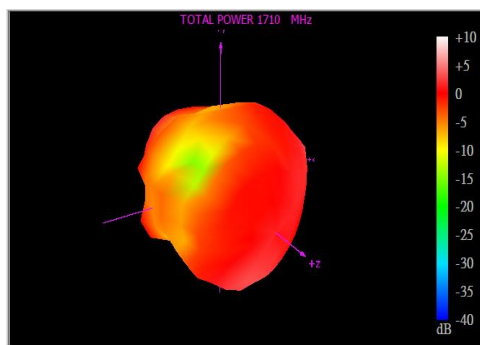
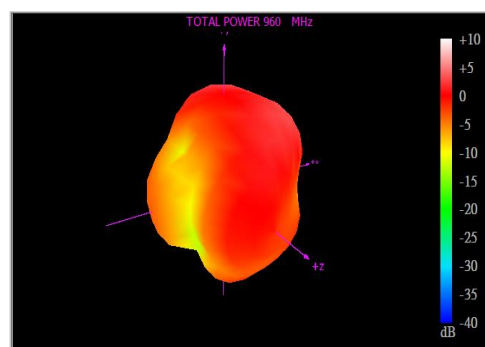
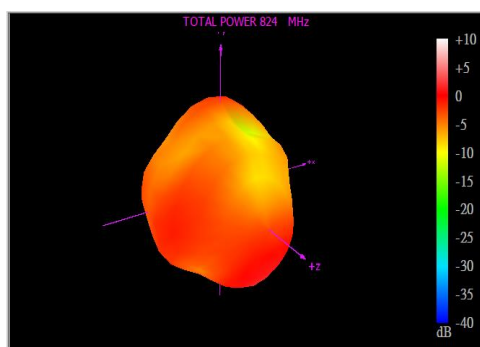
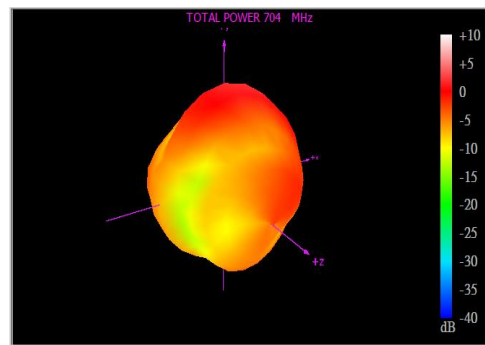
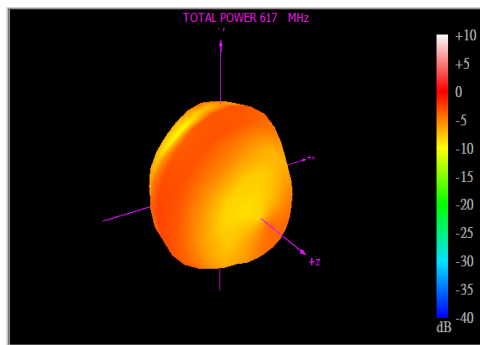


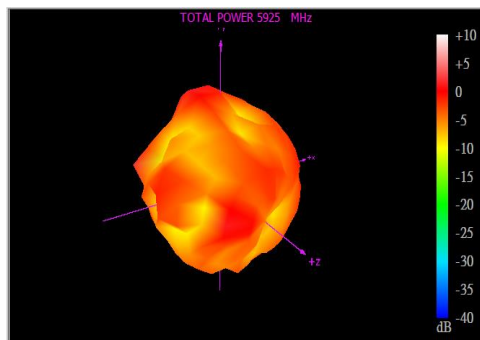
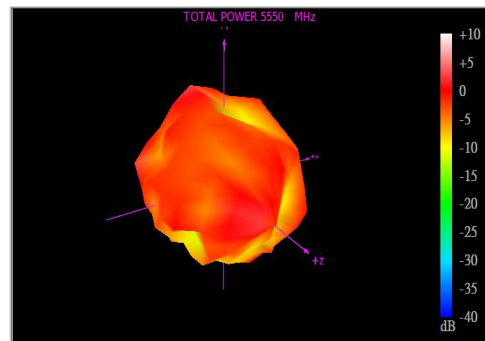
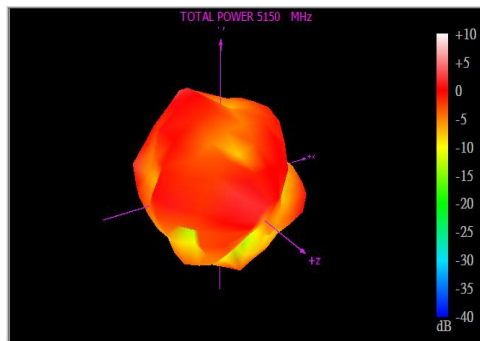
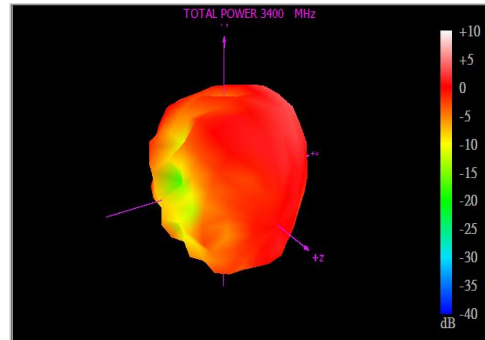
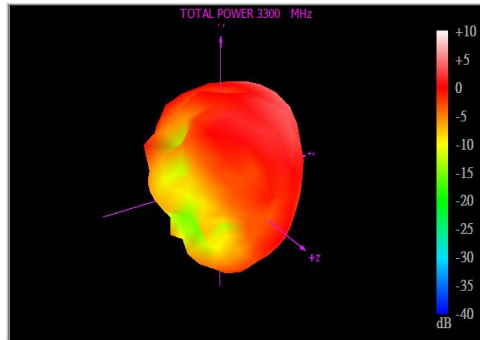
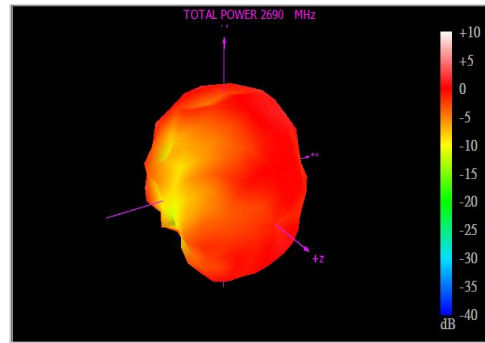
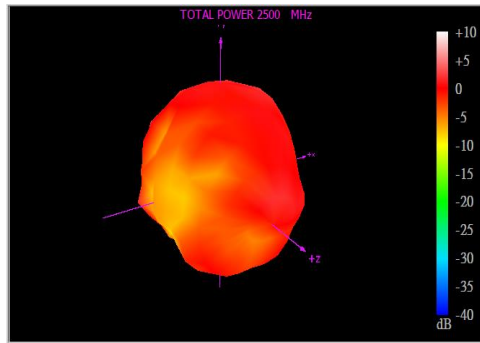
YZ Plane



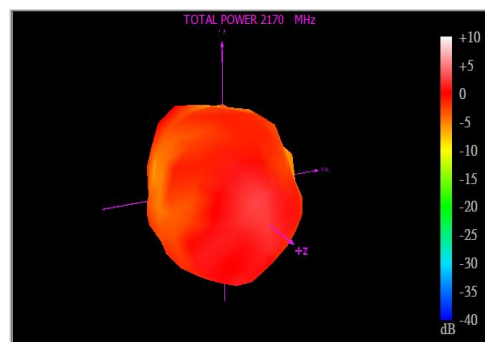
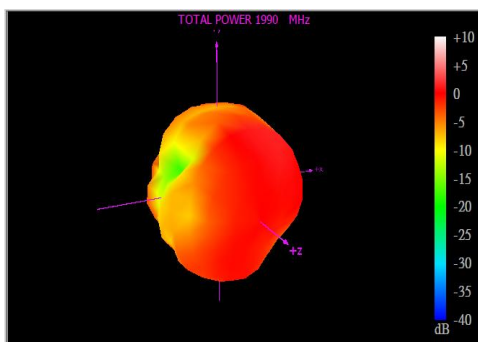
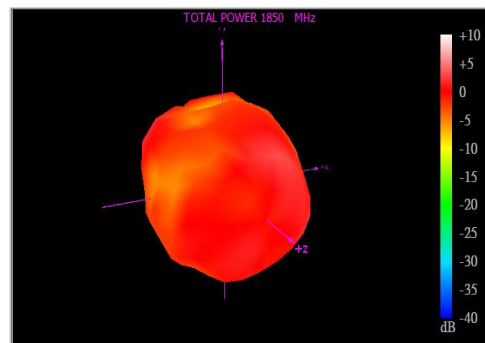
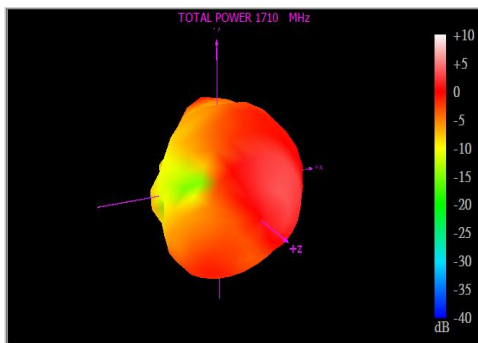
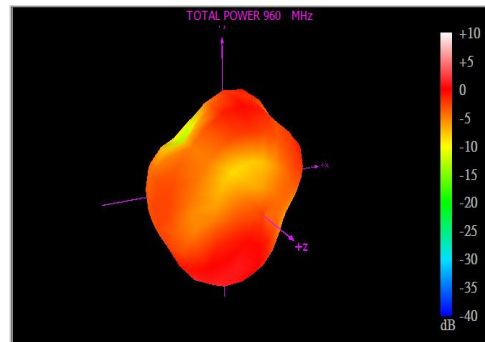
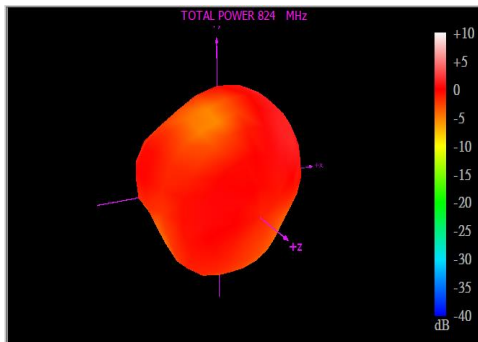
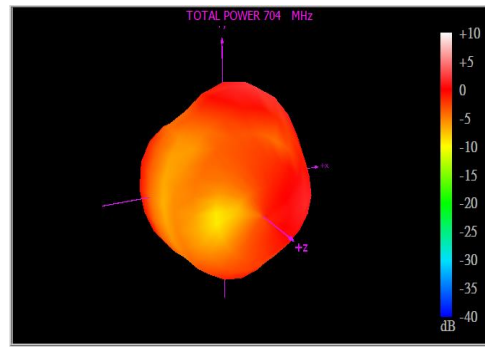
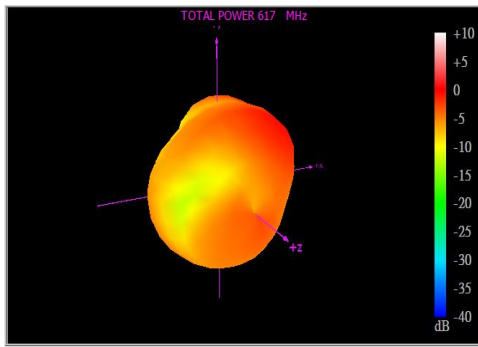
4.3 3D Radiation Pattern

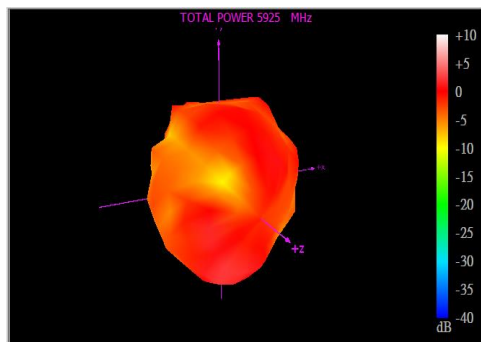
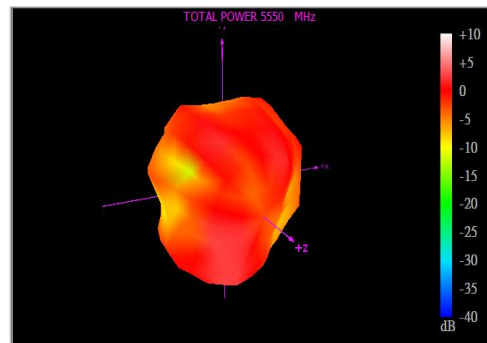
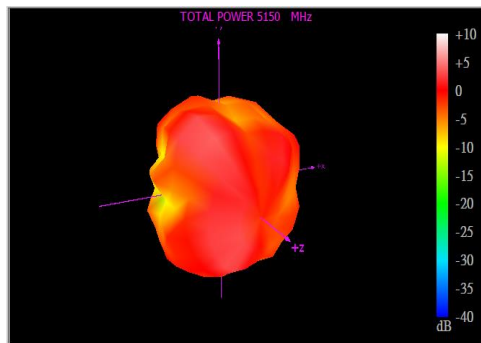
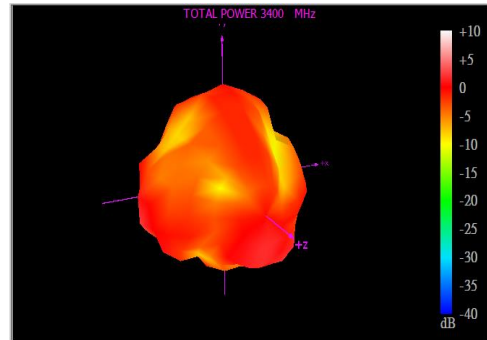
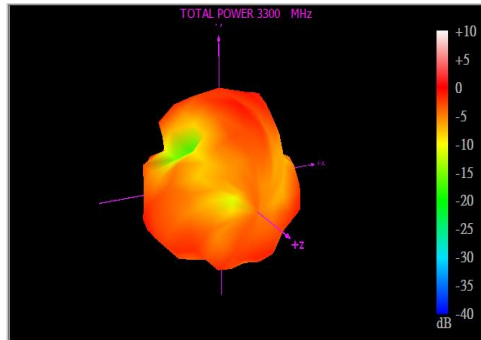
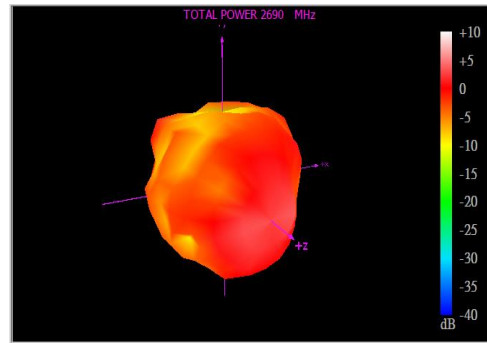
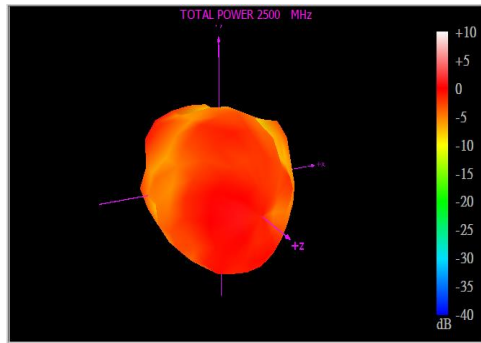
4.3.1 5G/4G MIMO1



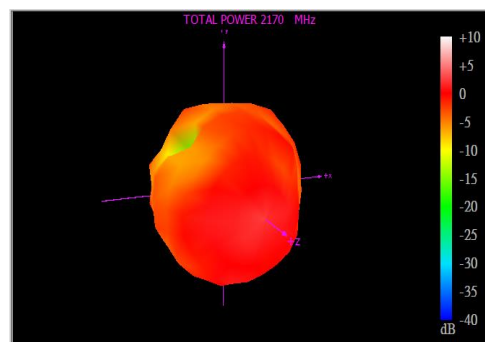
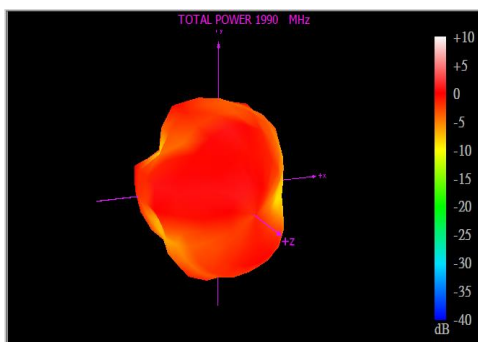
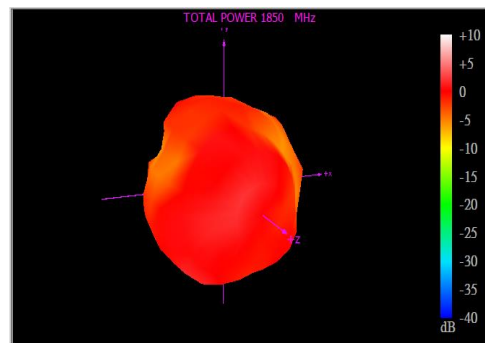
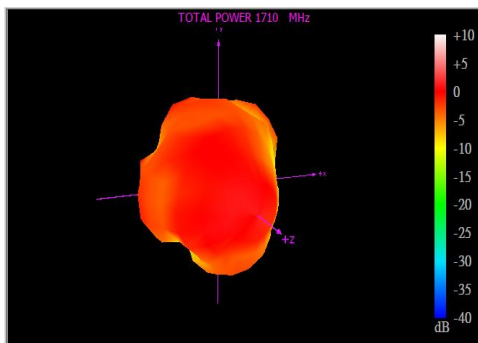
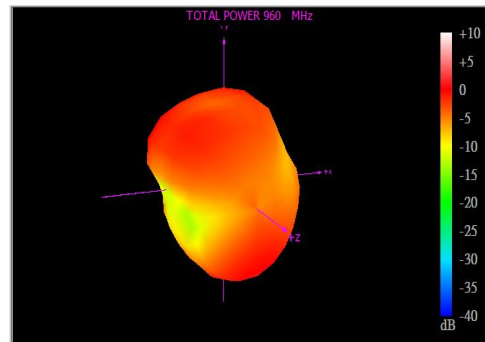
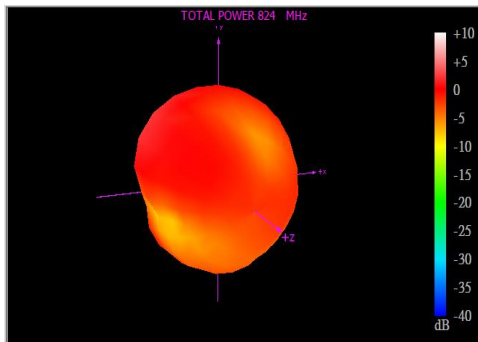
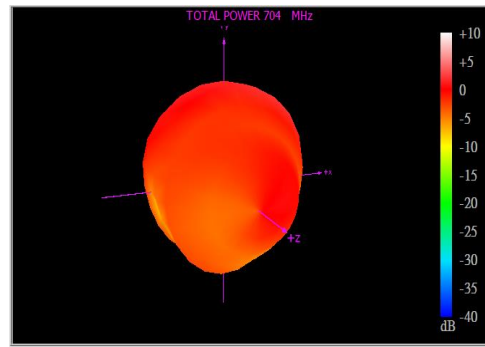
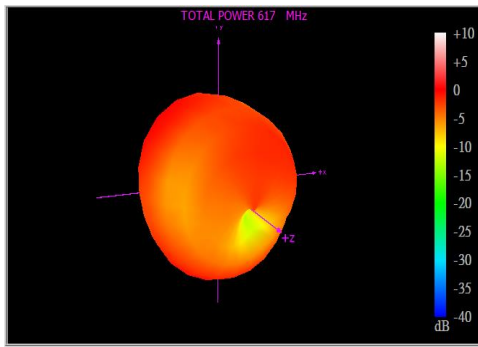


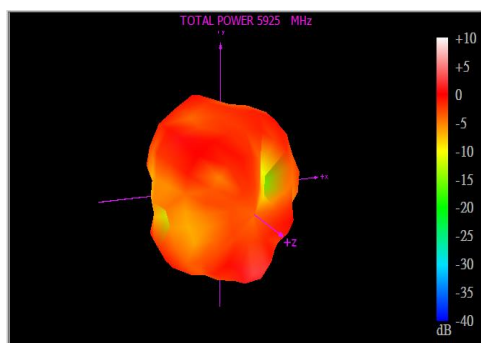
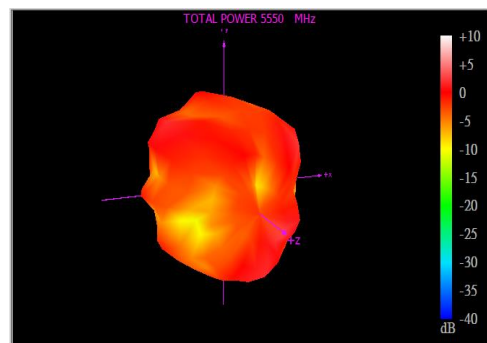
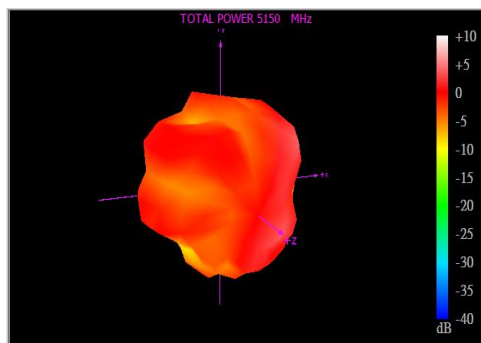
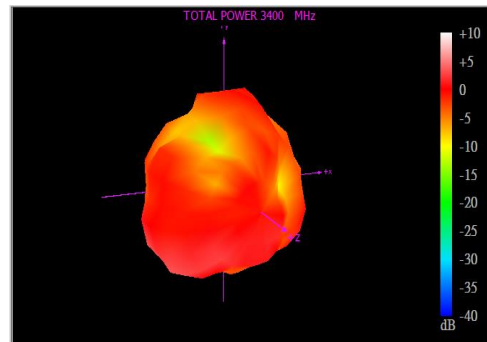
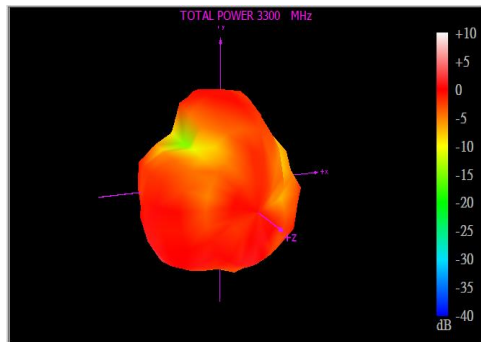
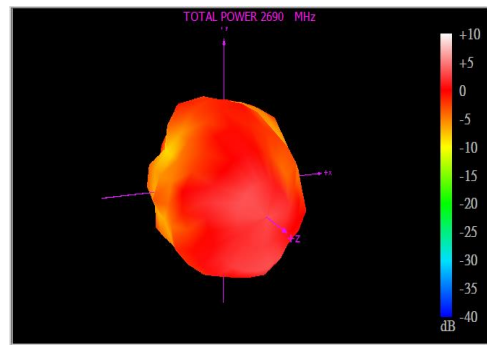
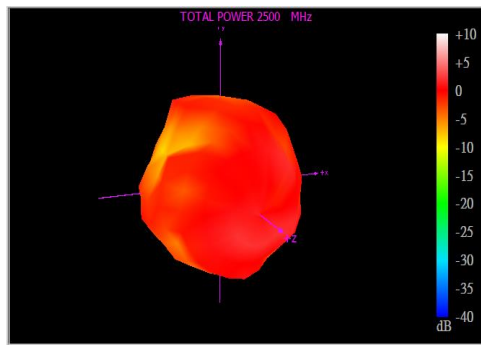
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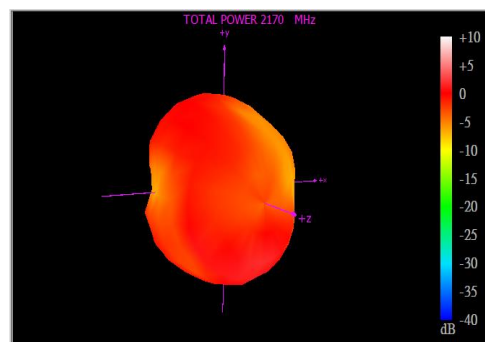
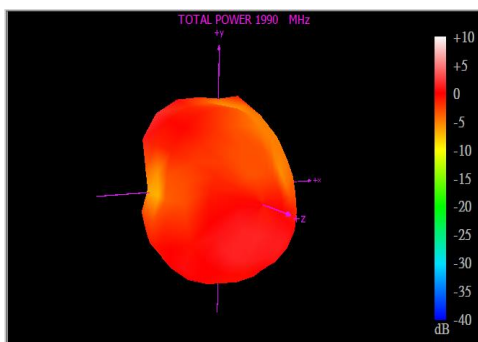
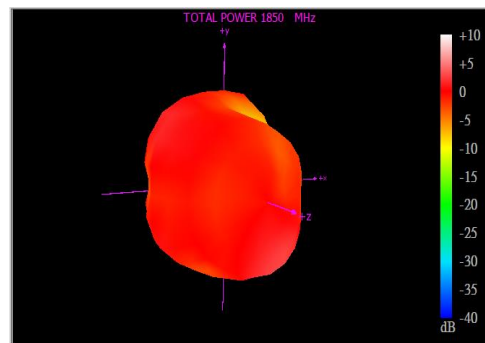
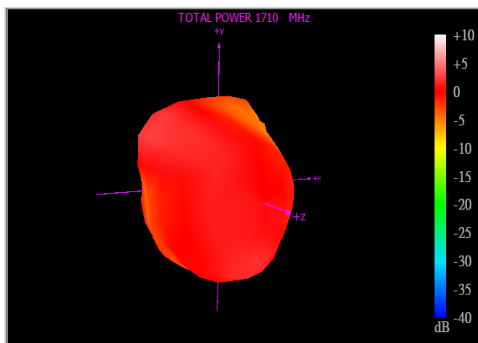
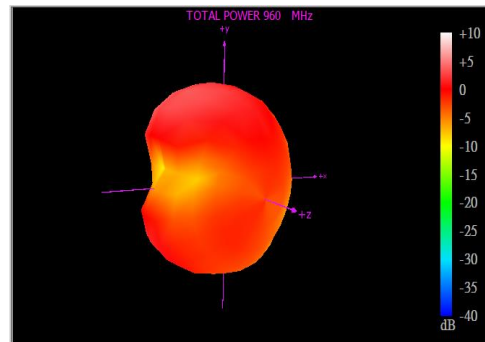
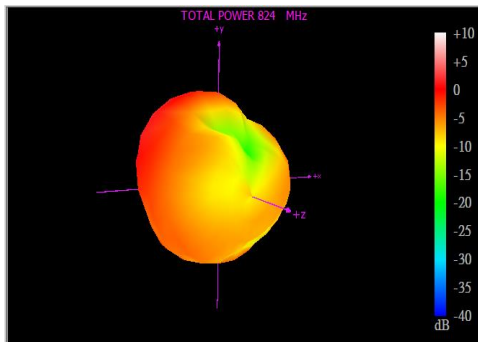
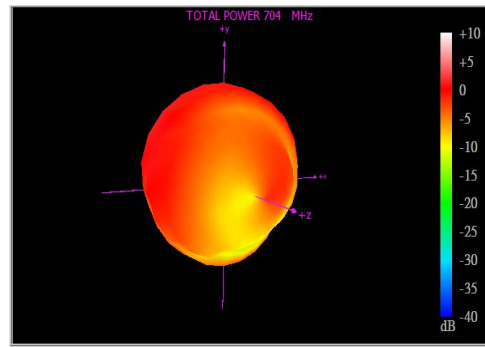
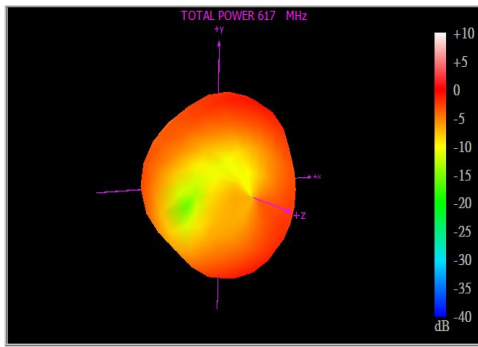


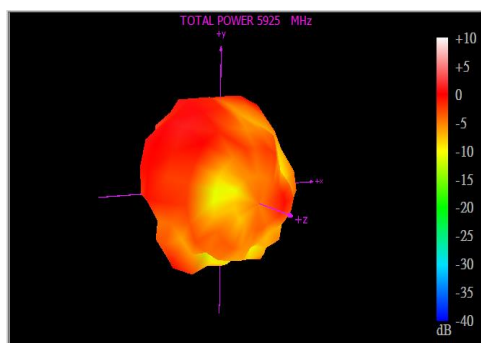
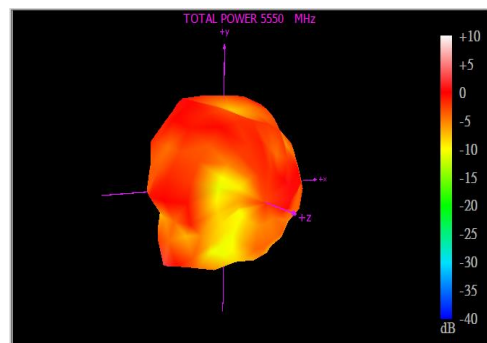
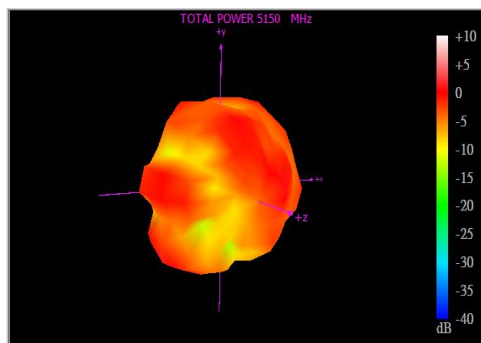
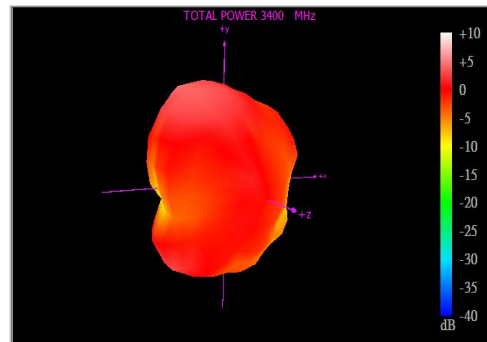
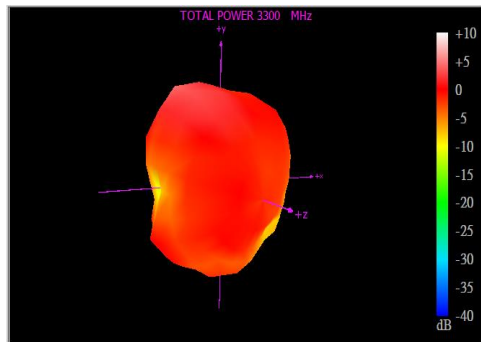
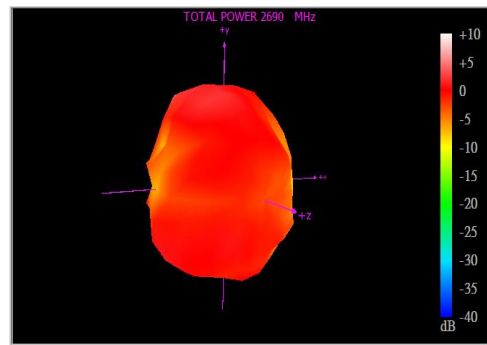
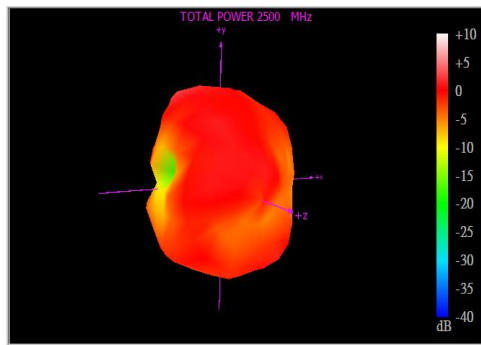
4.3.3 5G/4G MIMO3



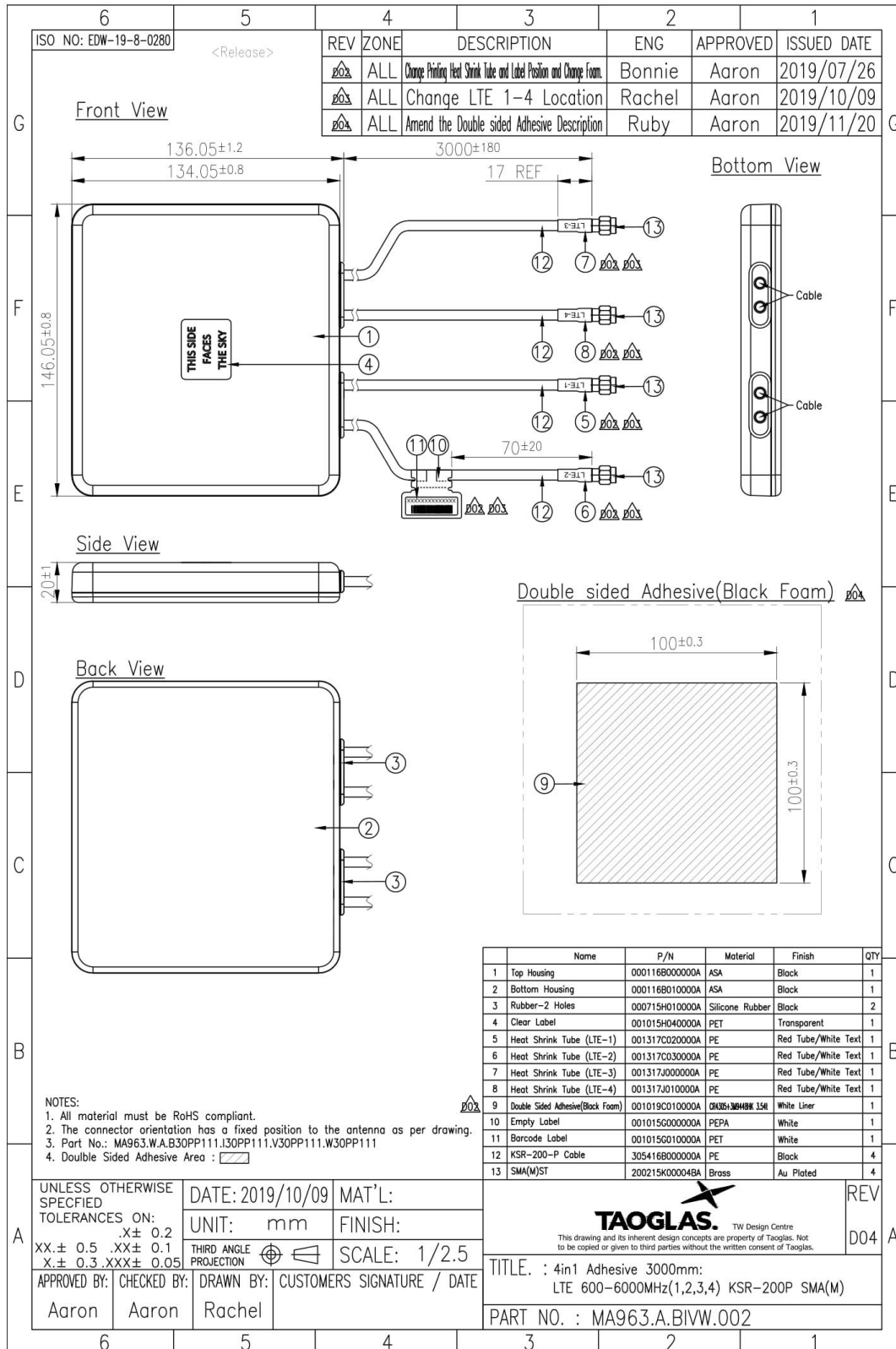


4.3.4 5G/4G MIMO4

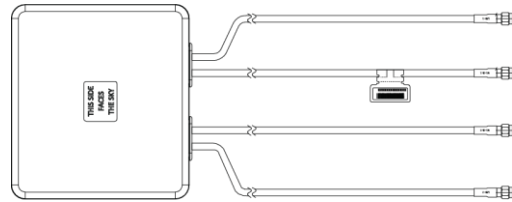




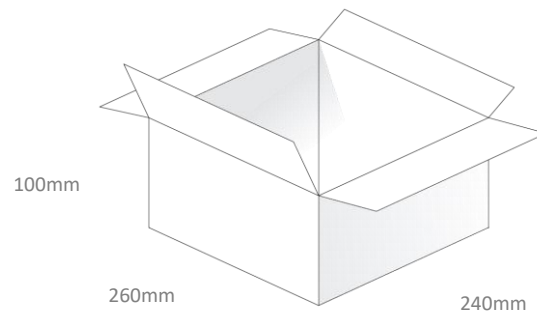
5. Mechanical Drawing (Units: mm)



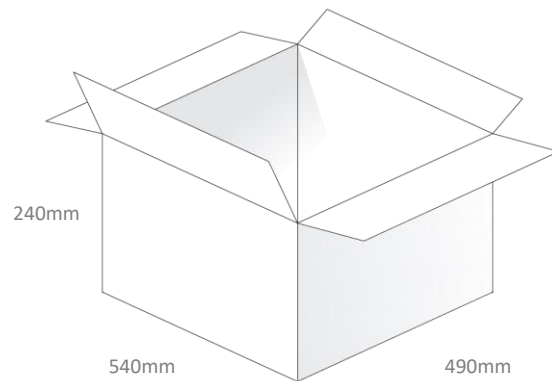
6. Packaging



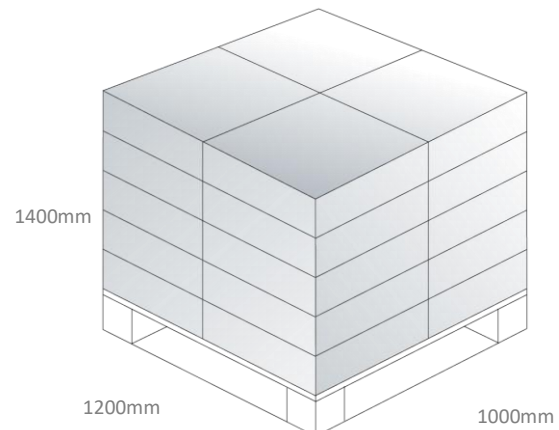
1 MA963.A.BIVW.002 per small box
 Box Dimensions - 260*240*100mm
 Weight - 450g



Box Dimensions - 540*490*240mm
 8 pcs MA963.A.BIVW.002 per carton
 Weight - 4Kg



Pallet Dimensions:
 1200*1000*1400mm
 20 Cartons per Pallet
 4 Cartons per layer, 5 Layers



Changelog for the datasheet

SPE-19-8-051 – MA963.A.B1VW.002

Revision: B (Current Versions)

Date:	2020-04-28
Notes:	Updated Drawing
Author:	Jack Conroy

Previous Revisions

Revision: A (Original First Release)

Date:	2019-04-16
Notes:	Initial Datasheet Release
Author:	Yu Kai Yeung



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